<400> 1
accgctcacc aggtcagttg tccccggaaa gccgaaggca tgagcttcgc ccaagttctt   60

tttatgggtt agaactcctc cagagcgggg gaaaaaggac ttggaatagg ggcgggacgg   120

agcacgcacc cttctccgcc ttggttctcg ccgcgccccc tactctcggg atacttggga   180

ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc   235
                                           Met Ala Pro Ala Ala Gly
                                           1   5

gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg   283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
            10   15   20

tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag   331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
        25   30   35

gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg   379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
    40   45   50

acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc   427
Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55   60   65   70

gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc   475

1

```
Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
            75                80                85

ttc tct cct gcc agt gtg gac aac cag cta aat gcc cag ttg gca gct      523
Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
            90                95                100

ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc      571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
            105               110               115

act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga      619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
    120               125               130

gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg      667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135               140               145               150

acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct      715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                155               160               165

gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag      763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170               175               180

ctc atc gtc ctt ggc agg acc tca gag gcc cct gag ctc cta cct ggt      811
Leu Ile Val Leu Gly Arg Thr Ser Glu Ala Pro Glu Leu Leu Pro Gly
            185               190               195

ttt cgg gcg ggg ccc ttg gaa gat tgg ctc ttt gtg gtc gtg gtc tgc      859
Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu Phe Val Val Val Val Cys
    200               205               210

ctg gcg agc ctc ctc ctc ttc ctc ctc ctg ggc atc tgc tgg tgc cag      907
Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln
215               220               225               230

tgc tgt cct cac acc tgc tgc tgc tat gtc cga tgt ccc tgc tgc cca      955
Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro
                235               240               245

gac aag tgc tgt tgc cct gag gct ctt tat gct gct ggc aaa gca gcc      1003
Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala
            250               255               260

acc tca ggt gtc ccg agc atc tat gcc ccc agc atc tat acc cac ctc      1051
Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu
            265               270               275

tca cct gcc aag acc cca cca cct ccg cct gcc atg att ccc atg ggc      1099
Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro Met Gly
    280               285               290

cct ccc tat ggg tac cct gga gac ttt gac aga cat agc tca gtt ggt      1147
Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly
```

2

ggc cac agc tcc caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta   1195
Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val
            315   320   325

tct tca gaa gta cga agt ggc tac agg atc cag gct aac cag caa gat   1243
Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp
            330   335   340

gac tcc atg agg gtc cta tac tat atg gag aaa gag cta gcc aac ttt   1291
Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe
            345   350   355

gac cct tcc cga cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg   1339
Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met
            360   365   370

agt gaa gta acc tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc   1387
Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser
375   380   385   390

agg gct cct gcc ctc acc ccc atc agg gat gag gag tgg aat cgc cac   1435
Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His
                395   400   405

tcc cca cag agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa   1483
Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln
            410   415   420

cca agg ggt ggt tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat   1531
Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp
            425   430   435

gct cta gat gat atc aac cgg cct ggc tcc act gaa tca gga cgg tct   1579
Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser
    440   445   450

tct ccc cca agt agt gga cgg aga gga cgg gcc tat gca cct cca aga   1627
Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg
455   460   465   470

agt cgc agc cgg gat gac ctc tat gac ccg gac gat cct agg gac ttg   1675
Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu
            475   480   485

cca cat tcc cga gat ccc cac tat tat gac gac atc agg tct aga gat   1723
Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp
            490   495   500

cca cgt gct gac ccc aga tcc cgt cag cga tcc cga gat cct cgg gat   1771
Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp
            505   510   515

gct ggc ttc agg tca agg gac cct cag tat gat ggg cga cta tta gaa   1819
Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu
            520   525   530

3

```
gag gct tta aag aaa aag ggg tcg ggc gag aga agg agg gtt tac agg    1867
Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg
535             540             545                     550

gag gaa gaa gag gaa gag gag ggc caa tac ccc cca gca cct cca cct    1915
Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro
                555             560                     565

tac tca gag act gac tcg cag gcc tca cgg gag agg agg ctg aaa aag    1963
Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys
            570             575                     580

aat ttg gcc ctg agt cgg gaa agt tta gtc gtc tga tccacgtttt         2009
Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val  *
            585             590

gtatgtagct tttgtacttt tttttaatt ggaatcaata ttgatgaaac ttcaagccta   2069

ataaaatgtc taatcacaaa aaaaaaaa                                      2097



<210> 2
<211> 593
<212> PRT
<213> Rattus norvegicus

<400> 2
Met Ala Pro Ala Ala Gly Ala Cys Ala Gly Ala Pro Asp Ser His Pro
1               5                   10                  15

Ala Thr Val Val Phe Val Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp
                20                  25                  30

Pro Ala Ser Ala Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
            35                  40                  45

Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60


Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80

Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                 105                 110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115                 120                 125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130                 135                 140

Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
```

4

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
              165   170   175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Glu Ala
              180   185   190

Pro Glu Leu Leu Pro Gly Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu
          195   200   205

Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu
    210   215   220

Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val
225   230   235   240

Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr
              245   250   255

Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro
              260   265   270

Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro
          275   280   285

Ala Met Ile Pro Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp
    290   295   300

Arg His Ser Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg
305   310   315   320

Asp Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile
              325   330   335

Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu
              340   345   350

Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly
          355   360   365

Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp
    370   375   380

Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp
385   390   395   400

Glu Glu Trp Asn Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln
              405   410   415

Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro
              420   425   430

Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser
          435   440   445

Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg

5

```
                450                      455                      460
        Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro
        465             470             475             480

        Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp
                    485             490             495

        Asp Ile Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg
                    500             505             510

        Ser Arg Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr
                515             520             525

        Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu
                530             535             540

        Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Gly Gln Tyr
        545             550             555             560

        Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg
                    565             570             575

        Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val
                580             585             590

        Val
```

<210> 3
<211> 2040
<212> DNA
<213> Rattus norvegicus

<400> 3

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accgctcacc aggtcagttg tccccggaaa gccgaaggca tgagcttcgc ccaagttctt       60

tttatgggtt agaactcctc cagagcgggg gaaaaaggac ttggaatagg ggcgggacgg      120

agcacgcacc cttctccgcc ttggttctcg ccgcgccccc tactctcggg atacttggga      180

ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc      235
                                           Met Ala Pro Ala Ala Gly
                                           1               5

gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg      283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
            10              15              20

tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag      331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
        25              30              35

gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg      379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
    40              45              50

acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc      427
```

6

```
Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55              60              65              70

gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc      475
Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
            75              80              85

ttc tct cct gcc agt gtg gac aac cag cta aat gcc cag ttg gca gct      523
Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
            90              95              100

ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc      571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
            105             110             115

act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga      619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
    120             125             130

gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg      667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135             140             145             150

acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct      715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                155             160             165

gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag      763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170             175             180

ctc atc gtc ctt gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gcg agc      811
Leu Ile Val Leu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser
            185             190             195

ctc ctc ctc ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt cct      859
Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro
    200             205             210

cac acc tgc tgc tgc tat gtc cga tgt ccc tgc tgc cca gac aag tgc      907
His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys
215             220             225             230

tgt tgc cct gag gct ctt tat gct gct ggc aaa gca gcc acc tca ggt      955
Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly
                235             240             245

gtc ccg agc atc tat gcc ccc agc atc tat acc cac ctc tca cct gcc      1003
Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala
                250             255             260

aag acc cca cca cct ccg cct gcc atg att ccc atg ggc cct ccc tat      1051
Lys Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Pro Tyr
        265             270             275

ggg tac cct gga gac ttt gac aga cat agc tca gtt ggt ggc cac agc      1099
Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly Gly His Ser
```

7

```
tcc caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta tct tca gaa    1147
Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val Ser Ser Glu
295             300             305             310

gta cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg    1195
Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met
                315             320             325

agg gtc cta tac tat atg gag aaa gag cta gcc aac ttt gac cct tcc    1243
Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser
                330             335             340

cga cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg agt gaa gta    1291
Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val
            345             350             355

acc tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc agg gct cct    1339
Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro
        360             365             370

gcc ctc acc ccc atc agg gat gag gag tgg aat cgc cac tcc cca cag    1387
Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Gln
375             380             385             390

agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa cca agg ggt    1435
Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly
                395             400             405

ggt tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat gct cta gat    1483
Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp
            410             415             420

gat atc aac cgg cct ggc tcc act gaa tca gga cgg tct tct ccc cca    1531
Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro
            425             430             435

agt agt gga cgg aga gga cgg gcc tat gca cct cca aga agt cgc agc    1579
Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser
        440             445             450

cgg gat gac ctc tat gac ccg gac gat cct agg gac ttg cca cat tcc    1627
Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser
455             460             465             470

cga gat ccc cac tat tat gac gac atc agg tct aga gat cca cgt gct    1675
Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp Pro Arg Ala
                475             480             485

gac ccc aga tcc cgt cag cga tcc cga gat cct cgg gat gct ggc ttc    1723
Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp Ala Gly Phe
                490             495             500

agg tca agg gac cct cag tat gat ggg cga cta tta gaa gag gct tta    1771
Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu
            505             510             515
```

```
aag aaa aag ggg tcg ggc gag aga agg agg gtt tac agg gag gaa gaa      1819
Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu
    520             525             530

gag gaa gag gag ggc caa tac ccc cca gca cct cca cct tac tca gag      1867
Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu
535             540             545             550

act gac tcg cag gcc tca cgg gag agg agg ctg aaa aag aat ttg gcc      1915
Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala
            555             560             565

ctg agt cgg gaa agt tta gtc gtc tga tccacgtttt gtatgtagct           1962
Leu Ser Arg Glu Ser Leu Val Val  *
        570

tttgtacttt tttttaatt ggaatcaata ttgatgaaac ttcaagccta ataaaatgtc    2022

taatcacaaa aaaaaaaa                                                  2040


<210> 4
<211> 574
<212> PRT
<213> Rattus norvegicus

<400> 4
Met Ala Pro Ala Ala Gly Ala Cys Ala Gly Ala Pro Asp Ser His Pro
1               5               10              15

Ala Thr Val Val Phe Val Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp
            20              25              30

Pro Ala Ser Ala Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
        35              40              45

Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
    50              55              60

Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65              70              75              80

Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
            85              90              95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100             105             110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115             120             125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130             135             140

Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145             150             155             160
```

9

```
Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
            165                     170             175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val Val
            180                 185             190

Val Val Cys Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys
            195             200             205

Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro
    210                 215             220

Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly
225                 230             235                 240

Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr
            245                 250             255

Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile
            260             265             270

Pro Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser
            275             280             285

Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp
    290             295             300

Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn
305             310             315             320

Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu
            325             330             335

Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu
            340             345             350

Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser
    355             360             365

Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp
    370             375             380

Asn Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu
385             390             395             400

Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg
            405             410             415 .

Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser
            420             425             430

Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala
            435             440             445

Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro
    450             455             460
```

10

```
Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg
465             470             475             480

Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp
            485             490             495

Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg
            500             505             510

Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg
        515             520             525

Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala
    530             535             540

Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg
545             550             555             560

Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
            565             570
```

<210> 5
<211> 1893
<212> DNA
<213> Rattus norvegicus

<400> 5

```
accgctcacc aggtcagttg tccccggaaa gccgaaggca tgagcttcgc ccaagttctt      60

tttatgggtt agaactcctc cagagcgggg gaaaaaggac ttggaatagg ggcgggacgg     120

agcacgcacc cttctccgcc ttggttctcg ccgcgccccc tactctcggg atacttggga     180

ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc     235
                                         Met Ala Pro Ala Ala Gly
                                           1               5

gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg     283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
            10              15              20

tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag     331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
        25              30              35

gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg     379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
    40              45              50

acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc     427
Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55              60              65              70

gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc     475
Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
```

11

ttc tct cct gcc agt gtg gac aac cag cta aat gcc cag ttg gca gct   523
Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
            90   95   100

ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc   571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
            105   110   115

act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga   619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
            120   125   130

gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg   667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135   140   145   150

acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct   715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                  155   160   165

gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag   763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170   175   180

ctc atc gtc ctt gtt tat gct gct ggc aaa gca gcc acc tca ggt gtc   811
Leu Ile Val Leu Val Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val
            185   190   195

ccg agc atc tat gcc ccc agc atc tat acc cac ctc tca cct gcc aag   859
Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys
            200   205   210

acc cca cca cct ccg cct gcc atg att ccc atg ggc cct ccc tat ggg   907
Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Pro Tyr Gly
215   220   225   230

tac cct gga gac ttt gac aga cat agc tca gtt ggt ggc cac agc tcc   955
Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly Gly His Ser Ser
                  235   240   245

caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta tct tca gaa gta   1003
Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val Ser Ser Glu Val
            250   255   260

cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg agg   1051
Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg
            265   270   275

gtc cta tac tat atg gag aaa gag cta gcc aac ttt gac cct tcc cga   1099
Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg
            280   285   290

cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg agt gaa gta acc   1147
Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr
295   300   305   310

12

```
tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc agg gct cct gcc    1195
Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala
                315                 320                 325

ctc acc ccc atc agg gat gag gag tgg aat cgc cac tcc cca cag agt    1243
Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Gln Ser
                330                 335                 340

ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa cca agg ggt ggt    1291
Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly
                345                 350                 355

tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat gct cta gat gat    1339
Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp
        360                 365                 370

atc aac cgg cct ggc tcc act gaa tca gga cgg tct tct ccc cca agt    1387
Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser
375                 380                 385                 390

agt gga cgg aga gga cgg gcc tat gca cct cca aga agt cgc agc cgg    1435
Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg
                395                 400                 405

gat gac ctc tat gac ccg gac gat cct agg gac ttg cca cat tcc cga    1483
Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg
                410                 415                 420

gat ccc cac tat tat gac gac atc agg tct aga gat cca cgt gct gac    1531
Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp Pro Arg Ala Asp
            425                 430                 435



ccc aga tcc cgt cag cga tcc cga gat cct cgg gat gct ggc ttc agg    1579
Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp Ala Gly Phe Arg
    440                 445                 450

tca agg gac cct cag tat gat ggg cga cta tta gaa gag gct tta aag    1627
Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys
455                 460                 465                 470

aaa aag ggg tcg ggc gag aga agg agg gtt tac agg gag gaa gaa gag    1675
Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu
                475                 480                 485

gaa gag gag ggc caa tac ccc cca gca cct cca cct tac tca gag act    1723
Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr
                490                 495                 500

gac tcg cag gcc tca cgg gag agg agg ctg aaa aag aat ttg gcc ctg    1771
Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu
     505                 510                 515

agt cgg gaa agt tta gtc gtc tga tccacgtttt gtatgtagct tttgtacttt   1825
Ser Arg Glu Ser Leu Val Val  *
```

tttttttaatt ggaatcaata ttgatgaaac ttcaagccta ataaaatgtc taatcacaaa   1885

aaaaaaaa   1893

<210> 6
<211> 525
<212> PRT
<213> Rattus norvegicus

<400> 6
Met Ala Pro Ala Ala Gly Ala Cys Ala Gly Ala Pro Asp Ser His Pro
1   5   10   15

Ala Thr Val Val Phe Val Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp
            20   25   30

Pro Ala Ser Ala Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
        35   40   45

Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
    50   55   60

Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65   70   75   80

Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85   90   95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100   105   110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115   120   125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130   135   140

Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145   150   155   160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165   170   175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly Lys
            180   185   190

Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr
        195   200   205

His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro
    210   215   220

Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser

14

```
         225                    230                    235                    240

     Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly
                     245                 250                 255

     Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln
                     260                 265                 270

     Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala
                 275                 280                 285

     Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg
             290                 295                 300

     Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg
     305                 310                 315                 320

     Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn
                     325                 330                 335

     Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln
                 340                 345                 350

     Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser
                 355                 360                 365

     Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly
         370                 375                 380

     Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro
     385                 390                 395                 400

     Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg
                     405                 410                 415

     Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser
                 420                 425                 430

     Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro
                 435                 440                 445

     Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu
         450                 455                 460

     Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val
     465                 470                 475                 480

     Tyr Arg Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro
                     485                 490                 495

     Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu
                 500                 505                 510

     Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
                 515                 520                 525


                                         15
```

```
<210> 7
<211> 2158
<212> DNA
<213> Homo sapiens

<220>

<221> Misc_Feature
<222> 1259..1261
<223> Potential splicing site AAG

<221> Misc_Feature
<222> 1657
<223> Potential insertion of a AGG

<400> 7
tggagtgtgg ctcggaggac cgcggcgggt caagcacctt tctcccccat atctgaaagc        60

atgccctttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac       115
                                                 Met Gln Gln Asp
                                                  1


gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg       163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
5               10              15                      20

cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga       211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
                25              30              35

agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg       259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
            40              45              50

gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc       307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
        55              60              65



cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca       355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
    70              75              80

gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg       403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
85              90              95              100

gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc       451
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
            105             110             115

tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc       499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
            120             125             130
```

16

```
cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag          547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln
        135             140             145

ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gtt          595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
        150             155             160

gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag          643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165             170             175             180

ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc          691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
            185             190             195

atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac          739
Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
            200             205             210

agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg          787
Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
            215             220             225

aac aat gag gcc tac gca gag ctc atc gtc ctt ggg agg acc tca ggg          835
Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Gly
        230             235             240

gtg gct gag ctc tta cct ggt ttt cag gcg ggg ccc ata gaa gac tgg          883
Val Ala Glu Leu Leu Pro Gly Phe Gln Ala Gly Pro Ile Glu Asp Trp
245             250             255             260

ctc ttc gtg gtt gtg gta tgc ctg gct gcc ttc ctc atc ttc ctc ctc          931
Leu Phe Val Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu Leu
            265             270             275

ctg ggc atc tgc tgg tgc cag tgc tgc ccg cac act tgc tgc tgc tac          979
Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr
            280             285             290

gtc agg tgc ccc tgc tgc cca gac aag tgc tgc tgc ccc gag gcc ctg          1027
Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu
            295             300             305

tat gcc gcc ggc aaa gca gcc acc tca ggt gtt ccc agc att tat gcc          1075
Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala
        310             315             320

ccc agc acc tat gcc cac ctg tct ccc gcc aag acc cca ccc cca cca          1123
Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro
325             330             335             340

gct atg att ccc atg ggc cct gcc tac aac ggg tac cct gga gga tac          1171
Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr
            345             350             355

cct gga gac gtt gac agg agt agc tca gct ggt ggc caa ggc tcc tat          1219
```

17

```
Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr
            360             365             370


gta ccc ctg ctt cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc      1267
Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg
            375             380             385

agt ggc tac agg att cag gcc agc cag cag gac gac tcc atg cgg gtc      1315
Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val
            390             395             400

ctg tac tac atg gag aag gag ctg gcc aac ttc gac cct tct cga cct      1363
Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro
405             410             415             420

ggc ccc ccc agt ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc      1411
Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser
                425             430             435

ctc cac gag gac gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc      1459
Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu
                440             445             450

acc ccg atc cgg gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc      1507
Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro
                455             460             465

agg gga tgg gac cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg      1555
Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp
            470             475             480

cgg gcc agg cgg ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc      1603
Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu
485             490             495             500

acc ccg ccg agc acc gcc gag tca ggg agc agg tct ccc acg agt aat      1651
Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn
                505             510             515

ggt ggg aga agc cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac      1699
Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp
            520             525             530

gac ctc tat gac caa gac gac tcg agg gac ttc cca cgc tcc cgg gac      1747
Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp
            535             540             545

ccc cac tac gac gac ttc agg tct cgg gag cgc cct cct gcc gac ccc      1795
Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro
            550             555             560

agg tcc cac cac cac cgt acc cgg gac cct cgg gac aac ggc tcc agg      1843
Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg
565             570             575             580
```

18

```
tcc ggg gac ctc ccc tat gat ggg cgg cta ctg gag gag gct gtg agg    1891
Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg
                585                 590                 595

aag aag ggg tcg gag gag agg agg aga ccc cac aag gag gag gag gaa    1939
Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu
                600                 605                 610

gag gcc tac tac ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg    1987
Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
                615                 620                 625

cag gcg tcc cga gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg    2035
Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg
         630                 635                 640

gaa agt tta gtc gtc tga tctgacgttt tctacgtagc ttttgtattt          2083
Glu Ser Leu Val Val  *
645

ttttttttaa tttgaaggaa cactgatgaa gccctgccat acccctcccg agtctaataa  2143

aacgtataat cacaa                                                    2158




<210> 8
<211> 649
<212> PRT
<213> Homo sapiens

<220>

<221> Misc_Feature
<222> 386
<223> Potential deletion of a Glu

<221> Misc_Feature
<222> 518
<223> Potential insertion of a Arg

<400> 8
Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5                   10                  15

Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
                20                  25                  30

Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
            35                  40                  45

Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50                  55                  60

Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65                  70                  75                  80
```

19

```
Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
            85                  90                  95

Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100                 105                 110

Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
            115                 120                 125

Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
    130                 135                 140

Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145                 150                 155                 160

Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
            165                 170                 175

Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
            180                 185                 190

Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
    195                 200                 205

Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
    210                 215                 220

Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly
225                 230                 235                 240

Arg Thr Ser Gly Val Ala Glu Leu Leu Pro Gly Phe Gln Ala Gly Pro
            245                 250                 255

Ile Glu Asp Trp Leu Phe Val Val Val Cys Leu Ala Ala Phe Leu
            260                 265                 270

Ile Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr
    275                 280                 285

Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys
    290                 295                 300

Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro
305                 310                 315                 320

Ser Ile Tyr Ala Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr
            325                 330                 335

Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr
            340                 345                 350

Pro Gly Gly Tyr Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly
            355                 360                 365

Gln Gly Ser Tyr Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala
    370                 375                 380


                                20
```

```
Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp
385             390         395             400

Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp
                405             410             415

Pro Ser Arg Pro Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser
            420             425             430

Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg
            435             440             445

Gly Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser
    450             455             460

Pro Arg Ser Pro Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala
465             470             475             480

Gly Gly Gly Trp Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala
            485             490             495

Leu Asp Asp Leu Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser
            500             505             510

Pro Thr Ser Asn Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser
            515             520             525

Arg Ser Arg Asp Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro
    530             535             540

Arg Ser Arg Asp Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro
545             550             555             560

Pro Ala Asp Pro Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp
            565             570             575

Asn Gly Ser Arg Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu
            580             585             590

Glu Ala Val Arg Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys
    595             600             605

Glu Glu Glu Glu Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser
    610             615             620

Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu
625             630             635             640

Ala Leu Ser Arg Glu Ser Leu Val Val
            645
```

<210> 9
<211> 2101
<212> DNA
<213> Homo sapiens

<400> 9

tggagtgtgg ctcggaggac cgcggcgggt caagcacctt tctcccccat atctgaaagc   60

atgccctttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac   115
                                              Met Gln Gln Asp
                                              1

gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg   163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
5   10   15   20

cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga   211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
                25   30   35

agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg   259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
                40   45   50

gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc   307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
            55   60   65

cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca   355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
        70   75   80

gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg   403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
85   90   95   100

gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc   451
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
                105   110   115

tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc   499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
                120   125   130

cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag   547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln
                135   140   145

ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gtt   595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
    150   155   160

gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag   643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165   170   175   180

ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc   691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
                185   190   195

atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac   739

22

```
Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
        200                 205             210

agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg        787
Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
        215                 220             225

aac aat gag gcc tac gca gag ctc atc gtc ctt gac tgg ctc ttc gtg        835
Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val
        230                 235             240

gtt gtg gta tgc ctg gct gcc ttc ctc atc ttc ctc ctc ctg ggc atc        883
Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu Leu Leu Gly Ile
245                 250          ·      255                 260

tgc tgg tgc cag tgc tgc ccg cac act tgc tgc tgc tac gtc agg tgc        931
Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys
                    265                 270                 275

ccc tgc tgc cca gac aag tgc tgc tgc ccc gag gcc ctg tat gcc gcc        979
Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala
                 280                 285                 290

ggc aaa gca gcc acc tca ggt gtt ccc agc att tat gcc ccc agc acc        1027
Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Thr
        295                 300                 305            .

tat gcc cac ctg tct ccc gcc aag acc cca ccc cca cca gct atg att        1075
Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile
        310                 315                 320

ccc atg ggc cct gcc tac aac ggg tac cct gga gga tac cct gga gac        1123
Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr Pro Gly Asp
325                 330                 335                 340

gtt gac agg agt agc tca gct ggt ggc caa ggc tcc tat gta ccc ctg        1171
Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr Val Pro Leu
                    345                 350                 355

ctt cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc agt ggc tac        1219
Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg Ser Gly Tyr
                    360                 365                 370

agg att cag gcc agc cag cag gac gac tcc atg cgg gtc ctg tac tac        1267
Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr
        375                 380                 385

atg gag aag gag ctg gcc aac ttc gac cct tct cga cct ggc ccc ccc        1315
Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro
        390                 395                 400



agt ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc ctc cac gag        1363
Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu
405                 410                 415                 420
```

23

```
gac gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc acc ccg atc      1411
Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu Thr Pro Ile
            425                 430              435

cgg gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc agg gga tgg      1459
Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro Arg Gly Trp
            440                 445              450

gac cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg cgg gcc agg      1507
Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp Arg Ala Arg
            455                 460              465

cgg ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc acc ccg ccg      1555
Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu Thr Pro Pro
    470                 475              480

agc acc gcc gag tca ggg agc agg tct ccc acg agt aat ggt ggg aga      1603
Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn Gly Gly Arg
485                 490                 495                 500

agc cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac gac ctc tat      1651
Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr
                505                 510              515

gac caa gac gac tcg agg gac ttc cca cgc tcc cgg gac ccc cac tac      1699
Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp Pro His Tyr
            520                 525              530

gac gac ttc agg tct cgg gag cgc cct cct gcc gac ccc agg tcc cac      1747
Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro Arg Ser His
            535                 540              545

cac cac cgt acc cgg gac cct cgg gac aac ggc tcc agg tcc ggg gac      1795
His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg Ser Gly Asp
    550                 555              560

ctc ccc tat gat ggg cgg cta ctg gag gag gct gtg agg aag aag ggg      1843
Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg Lys Lys Gly
565                 570                 575                 580

tcg gag gag agg agg aga ccc cac aag gag gag gag gaa gag gcc tac      1891
Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu Glu Ala Tyr
            585                 590              595

tac ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg cag gcg tcc      1939
Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser
            600                 605              610

cga gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg gaa agt tta      1987
Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu
            615                 620              625

gtc gtc tga tctgacgttt tctacgtagc ttttgtattt ttttttttaa            2036
Val Val  *
    630

tttgaaggaa cactgatgaa gccctgccat acccctcccg agtctaataa aacgtataat   2096
```

<210> 10
<211> 630
<212> PRT
<213> Homo sapiens

<400> 10

```
Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5                   10                  15

Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
            20                  25                  30

Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35                  40                  45

Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50                  55                  60

Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65                  70                  75                  80

Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
                85                  90                  95

Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100                 105                 110

Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
        115                 120                 125

Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
    130                 135                 140

Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145                 150                 155                 160

Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
            165                 170                 175

Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
            180                 185                 190

Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
        195                 200                 205

Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
    210                 215                 220

Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp
225                 230                 235                 240

Trp Leu Phe Val Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu
```

25

Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys
          260   265   270

Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala
          275   280   285

Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr
    290   295   300

Ala Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro
305   310   315   320

Pro Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly
              325   330   335

Tyr Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser
          340   345   350

Tyr Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val
          355   360   365

Arg Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg
      370   375   380

Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg
385   390   395   400

Pro Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr
          405   410   415

Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala
          420   425   430

Leu Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser
      435   440   445

Pro Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly
      450   455   460

Trp Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp
465   470   475   480

Leu Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser
          485   490   495

Asn Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg
          500   505   510

Asp Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg
          515   520   525

Asp Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp
          530   535   540

Pro Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser

26

Arg Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val
            565   570   575

Arg Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu
            580   585   590

Glu Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp
            595   600   605

Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser
        610   615   620

Arg Glu Ser Leu Val Val
625   630

<210> 11
<211> 1954
<212> DNA
<213> Homo sapiens

<400> 11
tggagtgtgg ctcggaggac cgcggcgggt caagcacctt tctcccccat atctgaaagc   60

atgccctttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac   115
                                               Met Gln Gln Asp
                                               1

gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg   163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
5   10   15   20

cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga   211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
                25   30   35

agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg   259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
            40   45   50

gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc   307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
        55   60   65

cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca   355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
70   75   80

gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg   403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
85   90   95   100

gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc   451

27

```
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
                105                 110                 115


tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc      499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
            120                 125                 130


cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag      547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro.Ala Ser Val Asp Asn Gln
            135                 140                 145


ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gtt      595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
        150                 155                 160


gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag      643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165                 170                 175                 180


ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc      691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
                185                 190                 195


atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac      739
Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
            200                 205                 210


agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg      787
Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
        215                 220                 225


aac aat gag gcc tac gca gag ctc atc gtc ctt gtg tat gcc gcc ggc      835
Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly
    230                 235                 240


aaa gca gcc acc tca ggt gtt ccc agc att tat gcc ccc agc acc tat      883
Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Thr Tyr
245                 250                 255                 260


gcc cac ctg tct ccc gcc aag acc cca ccc cca cca gct atg att ccc      931
Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro
            265                 270                 275


atg ggc cct gcc tac aac ggg tac cct gga gga tac cct gga gac gtt      979
Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr Pro Gly Asp Val
            280                 285                 290


gac agg agt agc tca gct ggt ggc caa ggc tcc tat gta ccc ctg ctt     1027
Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr Val Pro Leu Leu
        295                 300                 305


cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc agt ggc tac agg     1075
Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg Ser Gly Tyr Arg
        310                 315                 320


att cag gcc agc cag cag gac gac tcc atg cgg gtc ctg tac tac atg     1123
Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met
```

28

```
gag aag gag ctg gcc aac ttc gac cct tct cga cct ggc ccc ccc agt      1171
Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Ser
                345                     350                 355

ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc ctc cac gag gac      1219
Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp
                360                     365                 370

gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc acc ccg atc cgg      1267
Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu Thr Pro Ile Arg
                375                     380                 385

gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc agg gga tgg gac      1315
Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro Arg Gly Trp Asp
    390                     395                 400

cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg cgg gcc agg cgg      1363
Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp Arg Ala Arg Arg
405                     410                 415                 420

ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc acc ccg ccg agc      1411
Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu Thr Pro Pro Ser
                425                     430                 435

acc gcc gag tca ggg agc agg tct ccc acg agt aat ggt ggg aga agc      1459
Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn Gly Gly Arg Ser
                440                     445                 450

cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac gac ctc tat gac      1507
Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp
                455                     460                 465

caa gac gac tcg agg gac ttc cca cgc tcc cgg gac ccc cac tac gac      1555
Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp Pro His Tyr Asp
    470                     475                 480

gac ttc agg tct cgg gag cgc cct cct gcc gac ccc agg tcc cac cac      1603
Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro Arg Ser His His
485                     490                 495                 500

cac cgt acc cgg gac cct cgg gac aac ggc tcc agg tcc ggg gac ctc      1651
His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg Ser Gly Asp Leu
                505                     510                 515

ccc tat gat ggg cgg cta ctg gag gag gct gtg agg aag aag ggg tcg      1699
Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg Lys Lys Gly Ser
                520                     525                 530

gag gag agg agg aga ccc cac aag gag gag gag gaa gag gcc tac tac      1747
Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu Glu Ala Tyr Tyr
                535                     540                 545

ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg cag gcg tcc cga      1795
Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg
                550                     555                 560
```

29

```
gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg gaa agt tta gtc      1843
Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val
565                 570                 575                 580

gtc tga tctgacgttt ctacgtagc ttttgtattt ttttttttaa tttgaaggaa        1899
Val *

cactgatgaa gccctgccat acccctcccg agtctaataa aacgtataat cacaa         1954



<210> 12
<211> 581
<212> PRT
<213> Homo sapiens


<400> 12
Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5                   10                  15

Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
            20                  25                  30

Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35                  40                  45

Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50                  55                  60

Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65                  70                  75                  80

Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
            85                  90                  95

Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100                 105                 110

Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
        115                 120                 125

Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
    130                 135                 140

Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145                 150                 155                 160

Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
            165                 170                 175

Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
            180                 185                 190

Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
        195                 200                 205
```

Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
    210   215   220

Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val
225   230   235   240

Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala
            245   250   255

Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro
            260   265   270

Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr
        275   280   285

Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr
    290   295   300

Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg
305   310   315   320

Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val
            325   330   335

Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro
            340   345   350

Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser
    355   360   365

Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu
    370   375   380

Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro
385   390   395   400

Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp
            405   410   415

Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu
        420   425   430

Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn
    435   440   445

Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp
    450   455   460

Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp
465   470   475   480

Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro
            485   490   495

Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg
            500   505   510

31

```
Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg
        515                520              525

Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu
    530              535              540

Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
545              550              555              560

Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg
            565              570              575

Glu Ser Leu Val Val
        580




<210> 13
<211> 1886
<212> DNA
<213> Mus musculus

<400> 13
gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct        52
                           Met Ala Pro Ala Ala Ser Ala Cys Ala
                           1               5

ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt      100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10                  15                  20                  25

ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg      148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30                  35                  40

cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac      196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
                45                  50                  55

tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg      244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
            60                  65                  70


aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct      292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
        75                  80                  85

gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc      340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90                  95                  100                 105

ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg      388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110                 115                 120
```

32

```
gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac       436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
            125              130              135

cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag       484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
            140              145              150

cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca       532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
        155              160              165

gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc       580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170              175              180              185

ctt ggc agg acc tca gaa gcc cct gag ctc cta cct ggt ttt cgg gcg       628
Leu Gly Arg Thr Ser Glu Ala Pro Glu Leu Leu Pro Gly Phe Arg Ala
                190              195              200

ggg ccc ttg gaa gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gca agc       676
Gly Pro Leu Glu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser
            205              210              215

ctc ctc ttc ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt ccc       724
Leu Leu Phe Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro
        220              225              230

cac acc tgc tgc tgc tat gtc aga tgt ccc tgc tgc cca gac aag tgc       772
His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys
        235              240              245

tgt tgc cct gag gcc ctt tat gct gct ggc aaa gca gcc acc tca ggt       820
Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly
250              255              260              265

gtg cca agc atc tat gcc ccc agc atc tat acc cac ctc tct cct gcc       868
Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala
                270              275              280

aag act ccg cca cct ccg cct gcc atg att ccc atg cgt cct ccc tat       916
Lys Thr Pro Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr
            285              290              295

ggg tac cct gga gac ttt gac agg acc agc tca gtt ggt ggc cac agc       964
Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser
            300              305              310

tcc cag gtg ccc ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa      1012
Ser Gln Val Pro Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu
        315              320              325

gta cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg      1060
Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met
330              335              340              345

agg gtc cta tac tat atg gag aag gag cta gcc aac ttc gat cct tcc      1108
```

33

```
Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser
            350                 355                 360


cgg cct ggc cct ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta    1156
Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val
            365                 370                 375


acc tcc ctc cat gaa gat gac tgg cga tct cgg cct tcc agg gct cct    1204
Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro
            380                 385                 390


gcc ctc aca ccc atc agg gat gag gag tgg aat cgc cac tcc cct cgg    1252
Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg
            395                 400                 405


agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt    1300
Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly
410                 415                 420                 425


ggt tgg ggg tct ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat    1348
Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp
                430                 435                 440


gac atc aac cgg cct ggc tcc act gaa tca gga agg tct tct ccc cca    1396
Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro
                445                 450                 455


agt agt gga cgg aga ggg cgg gcc tat gca cct ccg aga agt cgc agc    1444
Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser
                460                 465                 470


cgg gat gac ctc tat gac ccc gac gat cct aga gac ttg cca cat tcc    1492
Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser
                475                 480                 485


cga gat ccc cac tat tat gat gat ttg agg tct agg gat cca cgt gct    1540
Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala
490                 495                 500                 505


gac ccc aga tcc cgt cag cga tcc cac gat cct cgg gat gct ggc ttc    1588
Asp Pro Arg Ser Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe
                510                 515                 520


agg tca cgg gac cct cag tat gat ggg cga ctc tta gaa gag gct tta    1636
Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu
                525                 530                 535


aag aaa aaa ggg gct ggg gag aga aga cgc gtt tac agg gag gaa gaa    1684
Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu
            540                 545                 550


gaa gaa gaa gag gag ggc cac tat ccc cca gca cct ccg cct tac tct    1732
Glu Glu Glu Glu Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser
555                 560                 565


gag act gac tcg cag gcc tcg agg gag cgg agg atg aaa aag aat ttg    1780
Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu
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34

```
gcc ctg agt cgg gaa agt tta gtc gtc tga tcccacgttt tgttatgtag        1830
Ala Leu Ser Arg Glu Ser Leu Val Val  *
                    590


cttttatact tttttaattg gaatattgat gaaactcttc accaagccta ataaaa        1886
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<210> 14
<211> 1829
<212> DNA
<213> Mus musculus

<400> 14

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gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct        52
                             Met Ala Pro Ala Ala Ser Ala Cys Ala
                             1               5


ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt       100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10               15              20              25


ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg       148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30              35              40


cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac       196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
                45              50              55


tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg       244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
        60              65              70


aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct       292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
    75              80              85


gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc       340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90              95              100             105


ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg       388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110             115             120


gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac       436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
            125             130             135


cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag       484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
        140             145             150
```

```
cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca          532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
    155             160                 165

gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc          580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170                 175                 180                 185

ctt gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gca agc ctc ctc ttc          628
Leu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Phe
                190                 195                 200

ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt ccc cac acc tgc         676
Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys
                205                 210                 215

tgc tgc tat gtc aga tgt ccc tgc tgc cca gac aag tgc tgt tgc cct          724
Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro
            220                 225                 230

gag gcc ctt tat gct gct ggc aaa gca gcc acc tca ggt gtg cca agc          772
Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser
    235                 240                 245

atc tat gcc ccc agc atc tat acc cac ctc tct cct gcc aag act ccg          820
Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro
250                 255                 260                 265

cca cct ccg cct gcc atg att ccc atg cgt cct ccc tat ggg tac cct          868
Pro Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro
                270                 275                 280

gga gac ttt gac agg acc agc tca gtt ggt ggc cac agc tcc cag gtg          916
Gly Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val
                285                 290                 295

ccc ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa gta cga agt          964
Pro Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser
            300                 305                 310

ggc tac agg atc cag gct aac cag caa gat gac tcc atg agg gtc cta         1012
Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu
            315                 320                 325

tac tat atg gag aag gag cta gcc aac ttc gat cct tcc cgg cct ggc         1060
Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly
330                 335                 340                 345

cct ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta acc tcc ctc         1108
Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu
                350                 355                 360

cat gaa gat gac tgg cga tct cgg cct tcc agg gct cct gcc ctc aca         1156
His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr
                365                 370                 375

ccc atc agg gat gag gag tgg aat cgc cac tcc cct cgg agt ccc aga         1204
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Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg
      380                 385                 390

aca tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt ggt tgg ggg      1252
Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly
      395                 400                 405

tct ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat gac atc aac      1300
Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn
410                 415                 420                 425

cgg cct ggc tcc act gaa tca gga agg tct tct ccc cca agt agt gga      1348
Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly
                430                 435                 440

cgg aga ggg cgg gcc tat gca cct ccg aga agt cgc agc cgg gat gac      1396
Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp
                445                 450                 455

ctc tat gac ccc gac gat cct aga gac ttg cca cat tcc cga gat ccc      1444
Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro
                460                 465                 470

cac tat tat gat gat ttg agg tct agg gat cca cgt gct gac ccc aga      1492
His Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg
      475                 480                 485

tcc cgt cag cga tcc cac gat cct cgg gat gct ggc ttc agg tca cgg      1540
Ser Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg
490                 495                 500                 505

gac cct cag tat gat ggg cga ctc tta gaa gag gct tta aag aaa aaa      1588
Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys
                510                 515                 520

ggg gct ggg gag aga aga cgc gtt tac agg gag gaa gaa gaa gaa gaa      1636
Gly Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu
                525                 530                 535

gag gag ggc cac tat ccc cca gca cct ccg cct tac tct gag act gac      1684
Glu Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp
                540                 545                 550

tcg cag gcc tcg agg gag cgg agg atg aaa aag aat ttg gcc ctg agt      1732
Ser Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser
                555                 560                 565

cgg gaa agt tta gtc gtc tga tcccacgttt tgttatgtag cttttatact        1783
Arg Glu Ser Leu Val Val  *
570                 575

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<213> Mus musculus

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gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct   52
                            Met Ala Pro Ala Ala Ser Ala Cys Ala
                            1   5

ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt   100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10   15   20   25

ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg   148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30   35   40

cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac   196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
                45   50   55

tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg   244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
            60   65   70

aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct   292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
            75   80   85

gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc   340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90   95   100   105

ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg   388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110   115   120

gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac   436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
            125   130   135

cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag   484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
            140   145   150

cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca   532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
            155   160   165

gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc   580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170   175   180   185

ctt gtt tat gct gct ggc aaa gca gcc acc tca ggt gtg cca agc atc   628
Leu Val Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile
                190   195   200

38

```
tat gcc ccc agc atc tat acc cac ctc tct cct gcc aag act ccg cca        676
Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro
            205             210             215

cct ccg cct gcc atg att ccc atg cgt cct ccc tat ggg tac cct gga        724
Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly
            220             225             230

gac ttt gac agg acc agc tca gtt ggt ggc cac agc tcc cag gtg ccc        772
Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val Pro
    235             240             245

ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa gta cga agt ggc        820
Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly
250             255             260             265

tac agg atc cag gct aac cag caa gat gac tcc atg agg gtc cta tac        868
Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr
            270             275             280

tat atg gag aag gag cta gcc aac ttc gat cct tcc cgg cct ggc cct        916
Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro
            285             290             295

ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta acc tcc ctc cat        964
Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His
        300             305             310

gaa gat gac tgg cga tct cgg cct tcc agg gct cct gcc ctc aca ccc       1012
Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro
    315             320             325

atc agg gat gag gag tgg aat cgc cac tcc cct cgg agt ccc aga aca       1060
Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg Thr
330             335             340             345

tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt ggt tgg ggg tct       1108
Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser
            350             355             360

ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat gac atc aac cgg       1156
Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg
            365             370             375

cct ggc tcc act gaa tca gga agg tct tct ccc cca agt agt gga cgg       1204
Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg
            380             385             390

aga ggg cgg gcc tat gca cct ccg aga agt cgc agc cgg gat gac ctc       1252
Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu
    395             400             405

tat gac ccc gac gat cct aga gac ttg cca cat tcc cga gat ccc cac       1300
Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His
410             415             420             425

tat tat gat gat ttg agg tct agg gat cca cgt gct gac ccc aga tcc       1348
```

39

```
Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser
            430                 435                 440

cgt cag cga tcc cac gat cct cgg gat gct ggc ttc agg tca cgg gac      1396
Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp
            445                 450                 455

cct cag tat gat ggg cga ctc tta gaa gag gct tta aag aaa aaa ggg      1444
Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly
            460                 465                 470

gct ggg gag aga aga cgc gtt tac agg gag gaa gaa gaa gaa gaa gag      1492
Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu
        475                 480                 485

gag ggc cac tat ccc cca gca cct ccg cct tac tct gag act gac tcg      1540
Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
490                 495                 500                 505

cag gcc tcg agg gag cgg agg atg aaa aag aat ttg gcc ctg agt cgg      1588
Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser Arg
            510                 515                 520

gaa agt tta gtc gtc tga tcccacgttt tgttatgtag cttttatact            1636
Glu Ser Leu Val Val  *
            525

tttttaattg gaatattgat gaaactcttc accaagccta ataaaa                  1682



<210> 16
<211> 594
<212> PRT
<213> Mus musculus


<400> 16
Met Ala Pro Ala Ala Ser Ala Cys Ala Gly Ala Pro Gly Ser His Pro
1               5               10                  15

Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
            20              25                  30

Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
        35                  40                  45

Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60

Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80

Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
```

40

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115   120   125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130   135   140

Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145   150   155   160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165   170   175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Glu Ala
            180   185   190

Pro Glu Leu Leu Pro Gly Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu
        195   200   205

Phe Val Val Val Cys Leu Ala Ser Leu Leu Phe Phe Leu Leu Leu
    210   215   220

Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val
225   230   235   240

Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr
                245   250   255

Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro
            260   265   270

Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro
        275   280   285

Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp
    290   295   300

Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg
305   310   315   320

Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile
            325   330   335

Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu
            340   345   350

Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly
        355   360   365

Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp
    370   375   380

Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp
385   390   395   400

Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln

Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro
            420   425   430

Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser
            435   440   445

Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg
    450   455   460

Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro
465   470   475   480

Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp
            485   490   495

Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg
            500   505   510

Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr
            515   520   525

Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu
    530   535   540

Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Glu Gly His
545   550   555   560

Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser
            565   570   575

Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu
            580   585   590

Val Val

<210> 17
<211> 575
<212> PRT
<213> Mus musculus

<400> 17
Met Ala Pro Ala Ala Ser Ala Cys Ala Gly Ala Pro Gly Ser His Pro
1   5   10   15

Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
            20   25   30

Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
            35   40   45

Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
    50   55   60

42

```
Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                70            75                80

Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
            85            90            95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100           105           110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115           120           125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130           135           140

Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145           150           155           160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
            165           170           175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val Val
            180           185           190

Val Val Cys Leu Ala Ser Leu Leu Phe Phe Leu Leu Leu Gly Ile Cys
    195           200           205

Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro
    210           215           220

Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly
225           230           235           240

Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr
            245           250           255

Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile
            260           265           270

Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser
    275           280           285

Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Glu Val Asp
    290           295           300

Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn
305           310           315           320

Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu
            325           330           335

Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu
            340           345           350

Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser
    355           360           365
```

43

```
Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp
    370                 375             380

Asn Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu
385             390             395                 400

Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg
            405             410                 415

Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser
            420             425             430

Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala
        435             440             445

Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro
    450             455             460

Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg
465             470             475                 480

Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser His Asp
            485             490             495

Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg
            500             505             510

Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg
        515             520             525

Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly His Tyr Pro Pro
    530             535             540

Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg
545             550             555                 560

Arg Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
            565             570             575


<210> 18
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<212> PRT
<213> Mus musculus

<400> 18
Met Ala Pro Ala Ala Ser Ala Cys Ala Gly Ala Pro Gly Ser His Pro
1               5               10              15

Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
            20              25              30

Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
        35              40              45
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44

Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
    50   55   60

Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65   70   75   80

Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85   90   95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100   105   110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
            115   120   125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130   135   140

Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145   150   155   160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
            165   170   175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly Lys
        180   185   190

Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr
        195   200   205

His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro
    210   215   220

Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser Ser
225   230   235   240

Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Glu Val Asp Gly
            245   250   255

Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln
            260   265   270

Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala
        275   280   285

Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg
    290   295   300

Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg
305   310   315   320

Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn
            325   330   335

Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln
            340   345   350

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Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser
        355                 360                 365

Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly
        370             375                 380

Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro
385                 390                 395                 400

Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg
                405                 410                 415

Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg Ser
                420                 425                 430

Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser His Asp Pro
        435                 440                 445

Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu
        450                 455                 460

Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg Val
465                 470                 475                 480

Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly His Tyr Pro Pro Ala
                485                 490                 495

Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg
                500                 505                 510

Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
        515                 520                 525


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<212> DNA
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56

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67

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68

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69

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70

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71

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72

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73

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74

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75

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76

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77

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78

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79

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